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XV.—*On the Ornithology of the Delta of the Rhone.*

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THE Delta of the Rhone, not unfrequently called the Camargue, is known to ornithologists, through the works of Jaubert and Barthélemy-Lapommeraye*, and Crespon †, as the haunt of a host of more or less rare and local marsh- and water-birds, including such peculiarly interesting species as the Flamingo, the Ibis, the Purple Gallinule, and Savi's and the Aquatic Warblers.

The reputation of the Camargue ornithologically, its remarkable physical peculiarities, its seclusion, and the fact that so few naturalists had visited its fastnesses, suggested that it might prove a suitable field for investigation, so far as it could be compassed within the short space of a month's leave. Such a little ornithological excursion was undertaken by the writer and his friend Mr. T. G. Laidlaw, M.B.O.U., of Edinburgh, during May 1894, with the results now to be recorded.

This contribution may be said to consist of two sections. In the one is given a short sketch of the physical peculiarities

* 'Richesses ornithologiques du midi de la France' (1859).

† 'Faune méridionale . . . du midi de la France' (1844).

of the various districts of the Delta and their bird-life, while the final portion is devoted to an annotated list of all the species observed in the various localities of the Bouches-du-Rhône visited. During this excursion ornithology received undivided attention, and, by dint of hard work and long hours, our peregrinations extended to all parts of the Delta; the more remote and uninhabited districts of the south receiving special attention.

The "Ile de la Camargue" is a vast plain covering an area of nearly 400 square miles. It lies between the two branches of the Rhone and is triangular in form, having the quaint town of Arles at its apex, and the Mediterranean as its base. It is remarkable for the extent of its marshes clothed with forests of reeds; the number of its shallow "étangs" and lagoons; its wide wastes covered with low, salt-loving shrubs; and, in summer, its expanses of sand glittering under a saline efflorescence. The greater part of the region is indeed simply desert; and the similitude is heightened by the ever-present mirage, which shimmers over plain and lagoon, much to the bewilderment of the visitor unacquainted with the geography of the region. It must not, however, be inferred that cultivated areas are entirely absent, for this is not the case. In the north, and also in the east and west, along the banks of the Rhones, the labours of the reclaimer and his elaborate system of irrigation have prevailed. But in the central and southern districts, which form at least two-thirds of the area of the Delta, the ground is so strongly impregnated with salt that its redemption is considered to be hopeless.

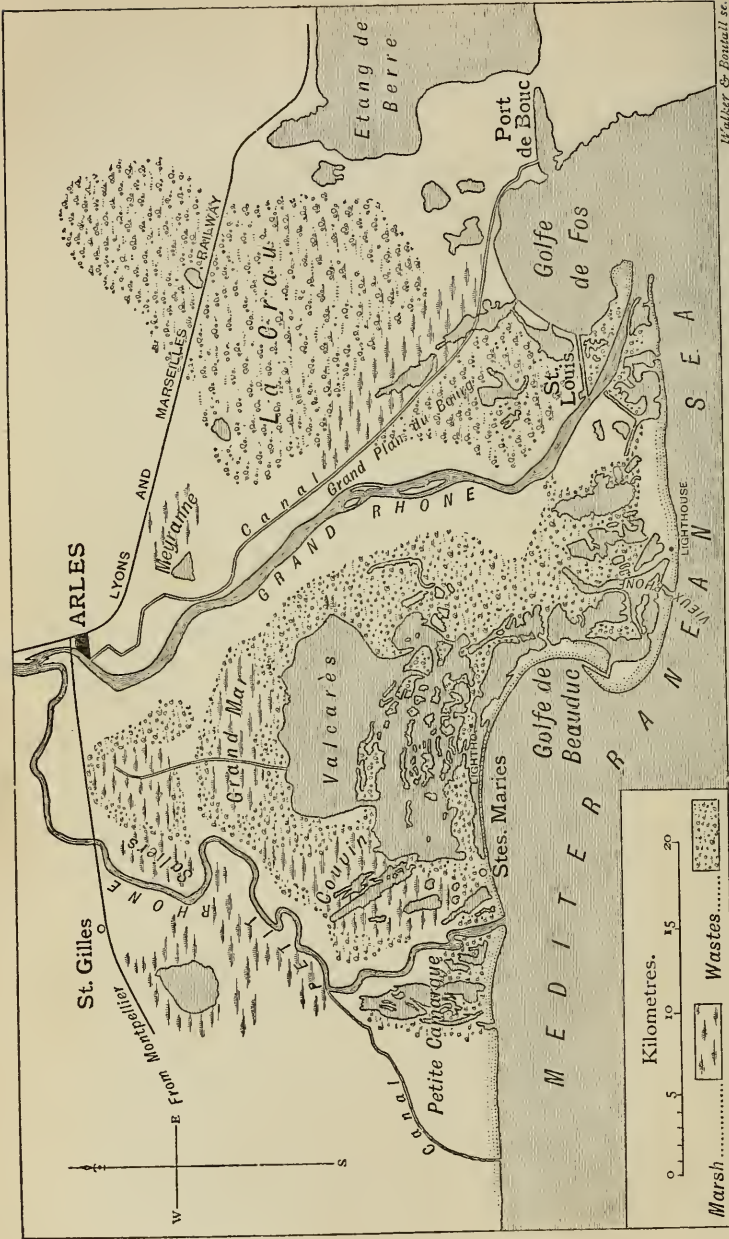
The Camargue boasts of one village only, the small fishing community of Saintes Maries in the extreme south-west. In the cultivated districts there are scattered farmsteads; but in the south it is practically uninhabited, there being only two lighthouses, the few lonely "vigies" of the Garde Maritime and Postes des Douanes, and the Saline de Giraud. Saintes Maries, described in 'Murray's Guide' as having "all the appearance of an African town in the desert, and consisting of an old edifice, half fortress, half

cathedral, with a few wretched dwellings grouped about it, and as desolate as a necropolis," formed our headquarters. In order to explore ornithologically the south-eastern districts, however, several days were spent at the station of the Garde Maritime in the solitudes of Beauduc. Visits were also paid to the Petite Camargue, and to the marshes and wastes at the mouth of the Grand Rhône, and adjoining the shores of the Golfe de Fos.

The other regions of the Bouches-du-Rhône which are included within the scope of this contribution are the remarkable stony plain known as La Crau, and the neighbourhood of the singularly interesting old town of Arles—the Rome of ancient Gaul.

Before proceeding to give a slight sketch of the various natural districts within the Delta and their characteristic birds, it may be well to remark that the spring of 1894 had been one of the very driest on record in the South of France. Mention is made of this fact because the drought had certainly exercised a marked effect on the lagoon district, causing many sheets of water to disappear, and it *may* have had some influence on the bird-life of the region generally. We do not, however, consider that any material change in the complexion of the ornis of the Camargue, or in the number of the birds frequenting it, had been wrought; and this opinion is based upon the fact that the only district which appeared to be affected by the drought was the lagoon area, whose avifauna is always, and necessarily, extremely limited and peculiar.

The cultivated districts of the Delta, as already remarked, are mainly confined to the north and to the vicinity of the banks of the Rhone, where the land is free from salt. Here vines, rye, and oats flourish; and, on land newly reclaimed, rice is grown as a first crop to purify it. The birds of this section of the Camargue do not require to be particularized, for they are simply the ordinary species which affect similar haunts in South-western Europe. The presence here, and in some numbers too, of the Grey Partridge (*Perdix cinerea*) is worthy of mention, for this bird is not, we believe, usually



Walker & Bontail sc.

MAP OF THE DELTA OF THE RHONE.

W. Eagle Clarke del.

found at sea-level in the Mediterranean countries. There is no woodland, worthy the name, in the Camargue, but there are some fine trees in narrow belts, and also scattered trees in some localities in and about the cultivated area. Here, and here only, the Mistle-Thrush, Greenfinch, Tree-Sparrow, Great Titmouse, and Green Woodpecker were observed in the Delta.

The great marshes of the Camargue lie chiefly in the north, centre, and west, and probably cover an area of not less than 50 square miles. They are remarkable not only for their great extent but for the dense growth of reeds, which, owing to the uniform shallowness of their waters, clothes the entire surface of most of them. There is an absence of those open-water spaces which are so attractive to Terns, Gulls, Ducks, and other aquatic species. Thus reed-loving forms alone flourish, but these were found to be neither numerous in species nor in individuals—a circumstance which is not surprising when one reflects upon the vastness of these retreats. No doubt many species escaped detection in these great reed-beds, for no group of birds are more skulking in their nature and more difficult of observation than they; neither is any class of haunt more difficult to traverse or to observe in, nor does any offer such facilities for hiding or escape to the hunted. We traversed miles of these reed-forests and observed the Reed-Warbler and Great Reed-Warbler in numbers, fewer *Cisticola cursitans*, and caught momentary glimpses of several other species—birds that were new to us—which unfortunately afforded no opportunity for identifying them. In the south-west there are extensive reed-beds and much marshy ground fringing shallow étangs of brackish water, and these are the home of the Reed-Warbler, the Bearded Reedling, the Reed-Bunting, the Purple Heron, the Marsh-Harrier, and the Coot. Here, again, were also many small reed-birds whose skulking habits baffled our attempts at their determination.

There appears to be an entire absence in the Camargue of those wooded swamps which form the favourite breeding-sites for colonies of the Ibis and the majority of the Ardeidæ.

Marshy ground with tussocks of sedge, for which the Rallidæ and certain Warblers have so strong a predilection, was likewise absent. In both cases the brackish nature of the water may account for the absence of these particular haunts; and, as bearing upon this, it may perhaps be useful to remark that neither Batrachians nor freshwater species of Mollusca were observed in any of the étangs of the Delta. The almost entire absence of the birds of typical aquatic families named, as well as the marsh-breeding species among the Gulls and Terns, proved a surprising and remarkable feature, and an experience for which we were scarcely prepared.

There may be conveniently included in the marsh region certain shallow étangs in the south-west in which the water, through brackish, was sufficiently congenial for the presence of fishes of the family Cyprinidæ and a few aquatic insects. On their margins and islands is some cover, consisting chiefly of tamarisk trees and shrubs characteristic of the salinity of the ground; and in the water there are patches of thin sedge of stunted growth. These étangs did not appear to have been affected with the drought, and were the chief resorts of the Duck frequenting the Camargue; while the islands were the main breeding-retreats of these birds. Here we found several pairs of Red-crested Pochards nesting—an interesting discovery—and many of the Mallard. And here, too, more than one pair of Pintails were most probably breeding, far to the south of all previous records. These étangs were also frequented by Avocets, Stilts, Redshanks, &c.; and by migratory Ospreys, and waders of many species to which allusion will presently be made. Grebes of any species were conspicuous by their absence—a circumstance which is readily accounted for by the shallowness of the waters, which in étangs covering several square miles were found nowhere to exceed a foot and a half in depth. The marshes of the north are intersected by dykes, on some of whose banks, and also those of the Rhones, bushes and shrubs are to be found, and these harbour *Hypolais polyglotta*, *Cettia cettii*, and other Warblers. Foxes and Marsh-

Harriers flourish exceedingly in the Camargue, for they have no enemies, and they make sad havoc among brooding birds and their young. No ground-nesting bird is safe from the fox, which was observed quartering the ground systematically, during the daytime, on several occasions. On this account many species of birds retire almost entirely to the islands to rear their broods.

In the arid saline region of the south, waste and water reign supreme; and thus it may be conveniently subdivided for our purposes into two sections, namely, lagoons and wastes. These together occupy a broad belt reaching to the Mediterranean, and cover quite one-third of the total area of the Delta, or over 100 square miles.

One of the most singular physical peculiarities of the Camargue is the extraordinary number and nature of the étangs, perhaps more appropriately termed lagoons, which form such a remarkable feature in its geography. They are great shallow pools of clear salt water whose shores are destitute of vegetation of any description. The largest of these lagoons is the Étang du Valcarès, the area of which varies, according to "authorities," from 10 to 30 square miles; but a careful computation, based upon the official map, places it at the happy medium, or about 20 square miles. One of the many peculiarities of these lagoons is their extreme and uniform shallowness. Thus Valcarès is probably nowhere, and at no season, more than 18 inches deep; and at the date of our visit it was not more than six inches, and only one-half its normal area, owing to the extreme dryness of the season. So great, indeed, had been the drought that the lagoons shown on the map as lying immediately to the south of Valcarès, and between that étang and the Mediterranean, were, in May 1894, sandy* deserts, without a blade of vegetation, but sparkling under a white efflorescence of salt, which in a few places was no less than two inches in thickness and pure white in colour. The dreariness of this area of dried-up lagoons was extreme, and

* The sand is blown from the shores of the Mediterranean and forms a thin carpet over a floor of particularly tenacious alluvium.

scarcely relieved by oases—in wet seasons low flat islets—in the shape of patches of waste with scanty heath-like vegetation. The waters of Valcarès are intensely salt and marvellously clear, and entirely devoid of vegetable life, unless of a microscopic nature. Its animal-life, so far as variety is concerned, is most limited and appeared to be confined to a few eels, and myriads of that tiny crustacean the brine-shrimp (*Artemia salina*), about which we shall have more to say in our notes under the heading of the Flamingo.* The floor of all the lagoons and étangs in the Camargue is wonderfully tough, and possessed of great water-holding qualities; and thus the waters are drawn off almost entirely by evaporation, which is exceedingly rapid under the fierce sunshine of spring and summer. We had evidence of this remarkable water-holding quality of the soil, when after a few hours' heavy rain several étangs were restored to a few days' existence. The Mediterranean, under the influence of strong southerly winds, is driven some miles inland, and also restores for a time some of the contiguous lagoons. In the south-east, in the Beauduc district and vicinity of the Vieux Rhône, many of the étangs adjoining the Mediterranean communicate with the sea; and these are never quite dry, though they vary considerably in the extent of their waters. They, too, are extremely shallow, and are studded with islands.

This region of salt lagoons is singularly devoid of bird-life, which is not surprising, since it is not calculated to afford the requirements necessary for the existence and nesting of ordinary aquatic species. Indeed, the only bird which makes its summer home amid this singular wilderness of water is the Flamingo, a species, however, which is in so many ways interesting as to compensate to a considerable degree for this remarkable dearth of feathered inhabitants. The Flamingo, however, is extremely local, for its haunts are practically confined to the Étang du Valcarès, whence it sometimes pays short visits to the lagoons in the

* Numerous valves of small specimens of *Cardium edule* are to be found on the shore, but we failed to obtain any containing the mollusc.

south-east. The number of these birds frequenting the Camargue during the spring of 1894 was from 500 to 600 at the most. Several attempts were made at taking an approximate census of the Flamingo-population, but they always failed, owing to the habit the birds had of herding together, or marshalling themselves into an extended line several ranks deep. In the Beauduc district the islands in the étangs are the breeding-grounds of many Common Terns and a few Mallard. These three species, all of them local in their distribution, form the resident summer birds of the great lagoon district of the Camargue.

The lagoons and their shores are, however, resorted to during the seasons of migration by a multitude of transitory wading-birds; for the Rhone valley is a highway much used by these and many other feathered travellers annually journeying to and from the arctic and tropical regions. During our stay it was our good fortune to see many of these interesting migrants, and we shall have something to say concerning them under the subject of migration, and also when treating of the various species.

The great wastes share with the lagoons the entire southern portion of the Camargue. There are, also, extensive wastes to be found in the north. They form vast level expanses, and much resemble heaths in appearance, being clothed with the salt-loving sea-blite (*Suaeda fruticosa*, var. *brevifolia*), which flourishes in varying luxuriance. On those wastes bordering the Mediterranean this plant is much interspersed with shrubs of the glasswort (*Salicornia radicans*).

Bird-life in this desert region, for it is little else, is again very meagrely represented; but there are a few species practically confined to it in the Delta. Thus it was here that we found the pretty little Spectacled Warbler (*Sylvia conspicillata*) and obtained its nest in tufts of the sea-blite. Here, too, that fine Chat, *Saxicola stapanina*, was observed, especially when the waste was contiguous to cultivated land; the Wheatear, to our surprise, was present in small numbers and doubtlessly breeding; and the

Tawny Pipit (*Anthus campestris*) was present in small numbers, but appeared to be confined to the extreme south. In the vicinity of the lagoons the Blue- and Grey-headed Wagtails (*Motacilla flava* and *M. cinereicapilla*) were not uncommon. The commonest "bird of the wilderness" was the Sky-Lark; and we certainly never appreciated this "blithe-some and cumberless" species so much as we did during our long, hot, wearisome tramps across these monotonous plains, where it was the only bird of whose presence we were cognizant for hours together. Much less abundant was the Short-toed Lark; while the Thicknee and the Kentish Plover, both thinly distributed, complete the waste-land list. Here and there on the fringe of the wastes, and the lagoons, are to be found patches of tamarisk-trees or scrub; the haunt of many Magpies and Hoopoes, and a few Lesser Grey Shrikes, Turtle-Doves, and Whitethroats.

The wastes, especially those of the central districts, afford pasturage for sheep, and for "taureaux à demi sauvages." Of these latter the visitor to the Camargue will hear much at Arles, and receive some words of caution concerning them. It is undoubtedly extremely dangerous to encounter solitary examples, or individuals separated from the herd, for these invariably "go for" intruders. It was with some misgivings, and only when necessary for the carrying-out of our plans, that we ventured among them; the more so because we had witnessed their fighting qualities, when pitted against Spanish torcadors, in the old Roman arena at Arles.

The Lagoon and Waste regions are much affected by the mirage. Indeed, this phenomenon was never absent in the daytime, and until we had mastered the geography of the country it proved to be a considerable hindrance to our movements; for it not only made it impossible to distinguish land from water, but it hid behind its shimmering veil the very few landmarks the region did possess. Perhaps we may here allude to a small, but, nevertheless, a serious inconvenience to which visitors to the Camargue are subject, namely, the mosquito. This little dipteran is the veritable curse of the region. It exists in myriads everywhere in the

south of the Delta, and it is quite useless to endeavour to escape its ever-assiduous attentions. True, we had the orthodox veil, but the choice lay between being smothered—for the heat in the Delta is intense—or bitten, and the mosquito triumphed.

The shores of the Mediterranean, and the sandhills adjoining, do not call for many observations. The former were exceedingly barren ornithologically, and even the Kentish Plover and the Oystercatcher, for both of which they are eminently suited, are not at all common. A few Terns, chiefly the common species, hover over the sea, and Gulls (*Larus cachinnans*) were not uncommon. The hollows among the sandhills are in some places clothed with bushes, and these are frequented by a few common species, chiefly Passerines, none of which are of sufficient importance to mention, but their presence will be duly remarked upon in the annotated list of species.

Several species as Camargue birds appeared to be confined to the immediate vicinity of the Grand and Petit Rhônes. The most interesting, in a way, among these was the Egyptian Vulture, which is common on the margins of the larger river just above the embouchure. The other species not observed elsewhere in the Delta were the Martin and the Sand-Martin.

A visit was paid to the Petite Camargue, or the region adjoining and beyond the west bank of the Petit Rhône and bordering the Mediterranean. This is a remote district and somewhat difficult of access, and it was hoped that it would prove to be interesting ornithologically. It much resembles the waste and lagoon regions of the Camargue, and its bird-life was very similar, but it must be remarked that the Flamingo was absent. A large sandy mound between two almost dry lagoons was covered with well-grown pines, in which several pairs of Carrion-Crows had nests; and in the immediate vicinity several Hobbies were busily pursuing insects on the 19th of May.

The Rhone Valley has long been known as one of the main routes leading to and from the summer and winter

homes of a very considerable number of migratory birds. The date of our visit was too late for witnessing the movements of the numerous Passerine and other small birds, but the shores of the lagoons and étangs down to our last day in the Delta—the 31st of May—formed the tarrying-grounds of considerable flocks of migratory waders. No doubt several species must necessarily have escaped our notice, but those observed were the Golden Plover, Grey Plover, Ringed Plover, Dunlin, Little Stint, Curlew Sandpiper, Knot, Sanderling, Redshank, Spotted Redshank, Greenshank, Bar-tailed Godwit, and Whimbrel. In addition to these a Red-backed Shrike and two Ospreys were also noted as migrants.

In connection with the subject of the migration of birds in the Camargue, it may be remarked that there are two lighthouses on the shores of the Mediterranean within the Delta. If observations on the movements of migrants could be obtained from these most advantageously situated watch-towers, it is probable that the value of the data afforded would be equal in importance and interest to those furnished by any other European station. M. Rey, of the Garde Maritime, who showed us extreme kindness during our visit to his lonely station on the shores of the Golfe de Beauduc, informed us that in April “thousands upon thousands” of small birds arrive there, and that his small garden is crowded with them for several days. That extremely rare visitors not unfrequently find their way down the Rhone Valley is manifest from specimens to be found in the fine collection of the birds of Provence in the Marseilles Museum. Here we noted local examples of such interesting strangers as *Turdus dubius*, *T. obscurus*, *T. naumanni*, *T. atrigularis*, *Calliope camtschatkensis*, *Emberiza aureola*, *E. rustica*, *Certhilauda desertorum*, *C. duponti*, *Melanocorypha yeltoniensis*, *Merops ægyptius*, *Surnia funerea*, *Milvus govinda*, *Elanus melanopterus*, *Ardea atricollis*, *Tringa platyrhyncha*, and *Vanellus gregarius*. Other species worthy of notice as having occurred in Southern Europe were *Pinicola enucleator*, *Calcarius lapponicus*, *Ficus leuconotus*, &c. This collection is well worth a visit, and

deserves far more attention and critical examination than we were able to bestow upon it.

On our way to and from the Camargue a few days were spent in the ancient and interesting town of Arles; and visits were made to the Plaine de la Crau and to Marseilles.

Arles is now a quiet agricultural town, but possesses many remarkable monuments, dating from the commencement of the Christian era, which bear testimony to its former greatness. During our short residence there we made several excursions into the surrounding country, including a couple of visits to the Marais de Meyranne, a great resort for reed-birds, lying a few miles to the south and adjacent to the east bank of the Grand Rhône. One portion of this great marsh was covered with a luxuriant growth of tussocks of sedge, which offered the only likely haunts for the aquatic Rallidæ that we had seen. On the occasion of our first visit we were unprepared to enter this cover, not having our wading-boots with us. On the second we found that the waters, owing to heavy rain, had risen two feet, and we were quite unable to approach the desired goal, which was most probably partially submerged. Such of the birds of the Marais de Meyranne as are worthy of mention have their place in the list which forms the concluding portion of this contribution; the only species that need be specially mentioned here being the Penduline Titmouse—a bird generally considered to be somewhat rare and extremely local in France, which was found to be not uncommon on the wooded margins of the ditches communicating with this marsh.

La Crau is a very remarkable stony plain, 30,000 acres in extent, lying some twelve miles E.S.E. of Arles, and extending in a southerly direction towards the Golfe de Fos and the Étang de Berre. It is the Campi Lapidei of the Romans. So extraordinary is this rough wilderness of stones that it excited the interest of such early writers as Strabo and Æschylus, the latter of whom ascribes to it the site of the great battle between Hercules and the Ligurians, when, after the hero had exhausted his arrows, Zeus rained

down stones from heaven to assist his son. Later authorities opine that it owes its existenee to the Rhone and the Durance, by whose waters its innumerable stones were deposited. The stones covering this vast area are certainly rounded by the action of water, and they vary in size from the dimensions of a man's head to that of his fist. They are loose, not imbedded, and form a stratum of great thickness. Between the stones there struggle for existence a few thin blades of parched-looking grass. The Crau is a dreary place in the extreme, and most toilsome to traverse. On the 18th of May we covered many miles of its rugged surface, which for roughness can only be compared to the dry bed of a mountain torrent. In the west of the wilderness there is some cultivation. This has been brought about by resort to rather remarkable methods—namely, the bringing of all manner of rubbish from Marseilles, which, after having been weeded of old boots and various tins, &c., is ground up in a mill and then spread over the surface of the stones. By this means, and an elaborate system of irrigation based upon the waters of the Durance, a marked change has been wrought, for good grass and vines now flourish, in strong contrast with their immediate sterile surroundings. The birds haunting this dismal plain are neither numerous in species nor in individuals. We were glad to make the acquaintance here of the Pin-tailed Sand-Grouse (*Pterocles alchata*), but failed to find the Rock-Partridge (*Caccabis saxatilis*), which we were informed is not very uncommon. The other birds observed were a few Short-toed Larks, several Egyptian Vultures, two Harriers, and several Stone-Curlews. Near the centre of the Crau is an oasis and a village, Entressen; also an étang, with deep water and, in places, fringing reeds, where we saw several pairs of Great Crested Grebes, the only birds of this family that came under our notice in the Bouches-du-Rhône.

Turdus viscivorus, Linn.

Haunts suited for the Mistle-Thrush are few in the Camargue, and confined to the northern districts, where, however, the bird appeared to be far from common. Around Arles it was noticed as fairly abundant.

TURDUS MERULA, Linn.

The Blackbird was not observed anywhere within the Delta, and appeared to be an uncommon bird in the area visited. A single pair only came under our notice, near the east bank of the Grand Rhône.

SAXICOLA ŒNANTHE (Linn.).

Low-lying country, two or three feet above the sea-level, is scarcely suited to the known requirements of the Wheatear in Southern Europe. Yet several pairs were observed on the wastes adjoining the Mediterranean, and were doubtlessly nesting, since they were seen throughout our visit.

SAXICOLA STAPAZINA, Vicill.

This beautiful species was thinly scattered over the wastes of the Camargue, especially those fringing the cultivated land of the central and northern districts, but was not observed in the more arid regions to the south. It was found to be an extremely shy species, and never afforded us an opportunity for securing specimens.

PRATINCOLA RUBETRA (Linn.).

A female, observed on waste land in the south-western portion of the Camargue on the 21st of May, was perhaps a laggard migrant, as the region is considerably to the south of the breeding-area of the Whinchat.

PRATINCOLA RUBICOLA (Linn.).

Two males only came under observation, both in the neighbourhood of Arles.

DAULIAS LUSCINIA (Linn.).

The Nightingale was extremely abundant in all the districts visited, haunting not only the smallest patches of cover, but even the bushes among the sand-hills bordering the Mediterranean.

SYLVIA CURRUCA (Linn.).

This species was not observed in the Camargue, and one seen near Fourques, a little to the north of Arles, was the only Lesser Whitethroat that came under notice.

*SYLVIA RUF*A (Bodd.).

In several standard works the Whitethroat is stated to become scarce in the Mediterranean region. This is certainly not the case in the Bouches-du-Rhône, where we found it extremely abundant—indeed, nowhere more so. In the Camargue it is generally distributed in suitable localities, and occurs quite down to the sea in the east and west.

SYLVIA CONSPICILLATA, Marm.

The Spectacled Warbler was only observed on the wastes of the southern portion of the Camargue, and those of a similar nature lying between the mouth of the Grand Rhône and the Golfe de Fos. Over this wide area the bird was found to be very thinly scattered. A nest in a shrub of sea-blite was placed about a foot from the ground, was well-concealed, and contained five much-incubated eggs. As opinions seem to differ widely as to the nature of this little Whitethroat, it may be stated that in our experience it was invariably an extremely shy and restless species.

SYLVIA ATRICAPILLA (Linn.).

Not uncommon, though local, in the northern portion of the Camargue. Around Arles, and in the gardens of that town, the Blackcap is quite common.

SYLVIA HORTENSIS, Bechst.

The Garden Warbler was observed locally in the northern districts of the Delta; and was also noted in the Petite Camargue, in shrubs among the sandhills bordering the Mediterranean. It was, however, quite common in the neighbourhood of Arles.

HYPOLAIS POLYGLOTTA (Vieill.).

A common bird in low trees bordering the dykes in the north of the Camargue and around Arles, and also on the banks of the Rhones.

ACROCEPHALUS STREPERUS (Vieill.).

In the Camargue the Reed-Warbler was common in the Marais du Couvin, de Saliers, and de la Grand Mar, and in the Beauduc district in marshes near the Vieux Rhône. It

was also very abundant in the Marais de Meyranne, near the east bank of the Grand Rhône.

ACROCEPHALUS TURDOIDES (Meyer).

For some reason which we cannot explain, the Great Reed-Warbler was abundant in the extensive marshes in the north of the Camargue, but appeared to be entirely absent from those of the south-west, though the latter were to all appearance equally suitable as haunts. It was not uncommon among willows on the banks of the Rhones, and was very common in the reeds of the Marais de Meyranne. On the canal near Arles one was observed singing in a poplar tree quite twenty-five feet from the ground.

LOCUSTELLA NÆVIA (Bodd.).

The Grasshopper Warbler was only noted in some suitable cover near the east bank of the Grand Rhône below Arles.

CETTIA CETTI (Marm.).

This species was very abundant in the northern portion of the Camargue and in the neighbourhood of Arles, being confined, however, to dense underwood fringing ditches. The very remarkable notes of Cetti's Warbler reminded us more of the alarm-cry of a much-startled bird, rather than partaking of the nature of a song. This impression was further heightened by the fact that on every occasion on which we heard these notes—and they were many—they were uttered only when we approached the bird's haunts and disturbed its seclusion, and then, like a startled Blackbird, it instantly burst out in its so-called song.

CISTICOLA CURSITANS (Frankl.).

A local species, which was observed only in the Marais du Couvin, and more abundantly in the Marais de Saliers, where it frequented both the tamarisk-bushes and the reeds, and was shot for identification.

PANURUS BIARMICUS (Linn.).

The Bearded Reedling was found to be a local species, but common where it occurred. In the Camargue we only observed it in the dense reed-beds of the Marais du Couvin,

in the south-west; where young able to fly were seen on the 21st of May. It was also an abundant bird in the Marais de Meyranne, a few miles south of Arles.

Jaubert and Barthélemy-Lapommeraye ('Richesses ornithologiques du midi de la France') state that this species is very rare in Provence, seen at long intervals, generally in the Camargue or on the borders of the Rhone.

PARUS MAJOR, Linn.

The Great Titmouse was common in the northern districts of the Delta and in the country around Arles.

ÆGITHALUS PENDULINUS (Linn.).

Jaubert and Barthélemy-Lapommeraye describe this species as being sedentary but rare in Provence. It was, however, found to be fairly abundant on the wooded banks of the dykes between the east bank of the Grand Rhône and Marais de Meyranne. Here we observed a nest suspended from the slender twigs of an elm tree, and which only required the dome to be woven in to render the structure perfect. On visiting this nest ten days later, the birds were found to be still busily engaged in building-operations, and the nest proved on examination to be not yet quite perfect. Thus it seems probable that no less a period than four or five weeks is required for the construction of this most beautiful among the nests of European birds. On both occasions we watched the birds for some time, and they were evidently very industrious, going and coming frequently with their bills filled with silky down of the willow catkin. Young birds able to fly well were observed at the end of May.

CERTHIA FAMILIARIS.

The Creeper only once came under notice, being observed among some trees near to the east bank of the Grand Rhône on the 23rd of May.

MOTACILLA ALBA, Linn.

Several White Wagtails were seen on the Rhone side above Arles on the 11th of May.

MOTACILLA FLAVA, Linn.

MOTACILLA CINEREICAPILLA, Savi.

The Yellow Wagtails of the Camargue were two in number, the *M. flava* of Linnæus and the *M. cinereicapilla* of Savi, which latter is regarded as a subspecies of *M. borealis* of Sundevall by Dr. Sharpe (Cat. Birds, x. p. 526). These two species were equally abundant and occupied haunts in common in the southern districts of the Delta. They were observed in pairs down to the end of May, and showed no signs of nesting at that date.

ANTHUS CAMPESTRIS (Linn.).

In the Camargue this species was entirely confined to the wastes of the extreme south, where it was thinly distributed over ground clothed with the salt-loving *Suaeda* and *Salicornia*. A pair were observed on pasture-land adjoining the Golfe de Fos.

ORIOLOUS GALBULA, Linn.

Only a single specimen of the Golden Oriole was noted—a male—which was observed in a wood near to the east bank of the Grand Rhône on the 23rd of May.

LANIUS MINOR, Gmel.

The Lesser Grey Shrike was an abundant and generally distributed species, frequenting alike the tall poplars around Arles, the low tamarisks of the southern Camargue, and the scrub fringing the Crau.

LANIUS POMERANUS, Sparrm.

The Woodchat Shrike was observed in the Delta only near to its apex, where a male and female were seen in a vineyard west of Arles. A nest with six fresh eggs was found in an elm near to the east bank of the Grand Rhône on the 1st of June.

LANIUS COLLURIO, Linn.

An adult male seen on an embankment of mud close to the Phare de la Cachelles on the shores of the Mediterranean, on the 27th of May, was the only Red-backed Shrike noted, and was undoubtedly on migration.

MUSCICAPA GRISOLA, Linn.

The Spotted Flycatcher appeared to be very uncommon in the districts of the Bouches-du-Rhône visited by us. The bird only once came under our notice, namely, among some tamarisk-trees growing amid the wastes of the southern Camargue.

HIRUNDO RUSTICA, Linn.

The Swallow was observed everywhere in suitable localities.

CHELIDON URBICA (Linn.).

The Martin was common around Arles, but in the Delta was confined to the banks of the Rhones, over whose waters it was not uncommon.

COTILE RIPARIA (Linn.).

The Sand-Martin was observed in the vicinity of the Rhones, and the Canal de Bouc, but not elsewhere.

CARDUELIS ELEGANS, Stephens.

The Goldfinch is a very common bird in the country around Arles; and, in suitable localities, throughout the Camargue.

LIGURINUS CHLORIS (Linn.).

This was found to be a rare species in the Camargue, though suitable haunts were not wanting in the northern districts of the Delta. Around Arles, however, the Greenfinch was quite a common bird.

PASSER DOMESTICUS (Linn.).

The Sparrow was not uncommon within the cultivated area of the Camargue and Petite Camargue; and had already become a colonist in the buildings recently erected on the lands reclaimed from the Crau.

PASSER MONTANUS (Linn.).

The Tree-Sparrow is common in the northern districts of the Camargue, and in the country around Arles.

FRINGILLA CŒLEBS, Linn.

A female Chaffinch, seen close to the town of Arles on the

11th of May, was the only bird of this species that came under our notice.

LINOTA CANNABINA (Linn.).

The Linnet was very common in the Camargue, occurring in cover among the sandhills fringing the Mediterranean, as well as in the vicinity of the cultivated districts. It was also common around Arles. The coloration of many of the males was exceptionally brilliant.

EMBERIZA MILIARIA, Linn.

Not uncommon in any district of the Delta where there were low trees. The Common Bunting was also abundant in the grass-lands reclaimed from the Crau, and around Arles.

EMBERIZA SCHENICLUS, Linn.

Though generally stated to be somewhat rare as a breeding species in the Mediterranean region, the Reed-Bunting was found to be quite common in the Marais du Couvin, in the south-west of the Camargue; and also in the Marais de Meyranne, on the east bank of the Grand Rhône.

ALAUDA CRISTATA, Linn.

The Crested Lark proved to be a local species and far from common. It was observed in only a few instances on cultivated land in the north of the Camargue.

ALAUDA ARVENSIS, Linn.

In the Delta of the Rhone the Sky-Lark attracts attention by its song in the arid and almost birdless wastes, where it shares with the Kentish Plover, and sometimes a Short-toed Lark and a Stone-Curlew, the representation of the feathered world over vast areas of barren country. We had many opportunities of inspecting this bird at close quarters, but it was not at all evident that the Sky-Larks of the Camargue were paler in colour than those at home; though a lighter form known as *Alauda cantarella* is said to take the place of the typical *Alauda arvensis* in the Mediterranean region. Many nests were found containing eggs, which in form, size, and coloration resembled those of the typical race.

CALANDRELLA BRACHYDACTYLA (Leisl.).

The Short-toed Lark has much the same distribution as the last species in the Camargue, being confined to the wastes, but is not so abundant. It also occurs in the Crau, where the Sky-Lark was not observed.

MELANOCORYPHA CALANDRA (Linn.).

The Calandra Lark was only once observed in the Camargue—on the waste to the north-east of Saintes Maries on the 16th of May. One was seen at L'Eysselle, near St. Louis. It was fairly common, however, on the reclaimed lands of the Crau which were under grass.

PICA RUSTICA (Scop.).

The Magpie was singularly abundant throughout the Camargue, even in the south, where it nested commonly in the low tamarisk-trees scattered over the wastes and among the sandhills bordering the Mediterranean. It was also very common in the country around Arles.

CORVUS CORONE, Linn.

This species was frequently observed on the sea-shore at Saintes Maries, which it visits, no doubt, for the sake of offal cast out by the fishermen. The breeding-place of these Carrion-Crows was found to lie a few miles to the west in the Petite Camargue, where in a small pine-wood, flourishing on slightly elevated sandy ground, we saw a number of their nests. This bird seems to be thinly scattered along the sea-board of the French Mediterranean region, for I saw several hanging about an encampment of sardine fishermen on the coast near the Spanish frontier in May 1889 (*cf.* Ibis, 1889, p. 548).

CYPSELUS APUS (Linn.).

The Swift was abundant but local in the districts visited, for haunts suited for brooding purposes were few and far between. It was quite common at Saintes Maries in the Camargue, where the old cathedral harboured many pairs. In Arles the numerous ruined edifices, which bear testimony to the ancient grandeur of the town, afford innumerable

and congenial nesting-sites, and the bird is correspondingly abundant.

GECCUS VIRIDIS (Linn.).

A pair were seen in some hedge-timber at Villeneuve in the eastern Camargue on the 31st of May. Green Woodpeckers were also observed on several occasions on the east bank of the Grand Rhône a few miles below Arles.

JYNX TORQUILLA, Linn.

A solitary Wryneck was seen and heard near Arles on the 1st of June.

ALCEDO ISPIDA, Linn.

Two Kingfishers were observed on the Canal de Bouc, below Arles, on the 1st of June.

CORACIAS GARRULUS, Linn.

A Roller was seen to alight on a small tree on the margin of the waste at Les Bruns, in the western Camargue, on the 22nd of May.

UPUVA EPOPS, Linn.

This bird was surprisingly abundant throughout the Camargue. Indeed, it was one of the commonest species that came under our notice. In many of the localities in which the Hoopoe was observed quite commonly there was an entire absence of the usual nesting-sites selected by this species, and it was brooding in holes at the roots of small trees, and also, it is thought, in holes in the banks of some of the drainage-levels. It was quite common around Arles. When a Hoopoe is in a rage, or greatly agitated, it utters a loud croaking note exactly like that of the frog (*Rana esculenta*): a fact that we have not seen recorded.

CUCULUS CANORUS, Linn.

The Cuckoo was not observed in the Camargue, but was common in the neighbourhood of Arles.

SCOPS GIU (Scop.).

A Scops Owl was seen and heard among timber near the east bank of the Grand Rhône, on the 1st of June.

NEOPHRON PERCNOPTERUS (Linn.).

The Egyptian Vulture was common in the lowest reaches of the Grand Rhône, where several adult examples were observed on the 30th of May. One of these sailed around almost within gunshot, and was bullied by a couple of Common Terns. The presence of these birds is attributable, no doubt, to the numerous carcasses of sheep &c., in all stages of decomposition, which strew the margin of the great river, and offer an abundant repast.

No fewer than five of these Vultures were observed soaring over the Crau on the 12th of May. Here, however, their breeding-haunts are probably within sight on the limestone cliffs of the Chaîne des Alpines, which lies to the north.

CIRCUS ÆRUGINOSUS (Linn.).

The Marsh-Harrier is present in the great marshes of the Camargue, in numbers that must tell considerably to the disadvantage of the other feathered denizens. Here this species is entirely without enemies and flourishes accordingly. Five nests were found after a short search in the Marais du Couvin on the 21st of May. These were, in all instances, placed in patches of reeds or sedges in which there was a considerable mixture of the dried stems or blades of last year's growth. One nest contained six young birds, all of different ages; the youngest being small and clothed in white down, while the oldest was considerably larger and growing brown on the wings and back. The bird was also numerous in the Marais de Meyranne.

BUTEO VULGARIS, Leach.

A Buzzard was observed near the north margin of the Étang du Valcarès on the 22nd of May.

FALCO SUBBUTEO, Linn.

Five or six Hobbies were observed pursuing insects near the pine-trees in the Petite Camargue on the 19th of May.

FALCO TINNUNCULUS, Linn.

The Kestrel was seen on two or three occasions in the

north of the Camargue, in localities where there were trees. One was observed in the Petite Camargue, and another among cover close to the Crau.

PANDION HALIAËTUS (Linn.).

Two Ospreys were observed in the Camargue on the 17th of May, and were undoubtedly migrating. Both were hovering over étangs in the western district of the Delta.

ARDEA CINEREA, Linn.

A solitary bird flying over the waste to the east of Saintes Maries, on the 15th of May, was the only example of the Common Heron seen in the Delta or elsewhere.

ARDEA PURPUREA, Linn.

The Purple Heron was common in the numerous marshes of the Camargue, whose vast areas of reeds afford the bird suitable haunts, and was the only Heron that we did not find to be rare in the Delta. In a small open space among the reed-beds bordering the Étang de Ginès was found a larder of this bird—a floating circular mass—containing about one hundred eels, three snakes, and several cyprinoid fishes, all of which showed distinctly the stab of the Heron's bill.

NYCTICORAX GRISEUS (Linn.).

A single Night-Heron seen in a ditch near the margin of the Étang de Ginès, on the 15th of May, was the only bird of this species observed by us in the Camargue or elsewhere in the Bouches-du-Rhône.

BOTAURUS STELLARIS (Linn.).

The booming of the Bittern was heard in the Marais de Meyranne on the 23rd of May. It was not heard in the great reedy marshes of the Camargue, though the bird is doubtlessly common there.

ARDETTA MINUTA (Linn.).

The Little Bittern was quite common in the neighbourhood of Arles, especially on the reedy margins of the Canal de Bouc, and also in the Marais de Meyranne, both near the east bank of the Grand Rhône.

PHŒNICOPTERUS ROSEUS (Pallas).

The chief haunt of the Flamingo is the Etang du Valcarès ; indeed, we never saw it elsewhere in the Camargue, and it is said, no doubt with truth, that this étang is the only breeding-station in the Delta. The birds, however, occasionally pay a flying visit to the lagoons adjoining the Golfe de Beauduc, as we were informed by the Garde Maritime, but do not remain long in that neighbourhood.

In recent times, or it may be in wet seasons, the herd which summers in the Rhone Delta may possibly have been numerically stronger than it was during the drougthy season of 1894. The local estimates, which we obtained from several sources, all placed the Flamingo-population of the Camargue at three thousand ; but figures thus procured must be accepted with considerable caution, for they are seldom entirely satisfactory. Be this as it may, the numbers present in the Delta this year (1894) certainly did not exceed six hundred, at the very most. Unfortunately our several attempts at taking a census completely failed, owing to the habit these birds have of herding together, as already mentioned.

Several days were devoted to the Flamingoes. We found them eminently sociable birds, being usually gathered together, or forming two large parties, from which the individuals did not stray far. They were also essentially aquatic, frequenting always the waters of the lagoon, or their margins. And such was the nature of their chosen haunt that the birds commanded the surrounding country far and wide, and were immediately aware of the advent of intruders. In the morning we usually found them busy feeding ; and when so engaged their proceedings were remarkable and puzzled us exceedingly, and for some days we quite failed to comprehend their singular behaviour. In their search for food the birds were always observed to scrape continuously with their feet the floor of the étang, and at the same time kept their heads quite submerged. The sight then witnessed was a very curious one, for it presented a moving forest of red legs, and an army of pink bodies turning, as it were,

on pivots, whilst the hidden head was swept around and described an outer circle under water. The conclusion at once formed was that the food, whatever it might be, was certainly obtained by raking among the mud, and it was equally evident that it consisted of something that required to be pursued and captured. We took some pains to ascertain the nature of the food thus sought, and eventually satisfied ourselves on this, perhaps, not unimportant point. To do this it was necessary to make a careful investigation of the life contained in the waters of this large étang—fortunately not a very difficult matter, owing to its being a salt lagoon. To begin with, there was no sign of vegetation in these remarkably clear waters. We were not able to detect even the lower forms of plant-life of microscopic dimensions. Of animals, a few *dead eels** were observed; and the valves of small cockles (*Cardium edule*) were abundant on the shores, but we failed to find any containing the mollusc. Neither of these creatures need be further discussed in connection with the food of the Flamingo. There were, however, present in the waters myriads of a tiny Phyllopod, the brine-shrimp (*Artemia salina*), and we secured a number of specimens. Indeed, so marvellously abundant were these tiny crustaceans in Valcarès that the receding waters had left them stranded in countless millions, and their decaying remains formed large discoloured patches on the shores of the étang. This so-called shrimp, it is well known, breeds in vast numbers in the mud of salt-lakes. Now, if we consider all these facts—*i. e.*, the nature of the food afforded by the étang; the peculiar method of feeding adopted by the Flamingoes; and, finally, the fact in the life history of *Artemia* just mentioned and its abundance—it is thought the chain of evidence is entirely in favour of the brine-shrimp forming the chief food of the Flamingo in the Camargue. The bird disturbs the little creatures in the mud, and entraps them in its box-like

* These eels, no doubt, find their way into the étang from the drainage-level which communicates with it on the north, and probably soon succumb.

bill as they endeavour to escape in all directions. It is true that the Flamingo has not hitherto, we believe, been recorded to feed on animals of this class. But, then, do we know much about the food of this bird in a state of nature? It is usually considered to be largely a vegetarian, but that it cannot be at Valcarès.

During the intervals of feeding some of the birds indulged in a little billing of an amatory nature, which was amusing to witness on the part of such sedate-looking and somewhat ungainly birds.

After midday they usually took a siesta, resting in a great variety of attitudes ; some standing on one leg, others sleeping with their heads tucked away. All were far off in the centre of the étang.

When suspicious of our attentions, which usually happened when we had approached to within 500 yards or less, the birds ceased feeding, raised their heads to their fullest height, and commenced to stalk about uneasily, with a measured dignified gait, and a half-frightened air, that were quite ludicrous to witness. On our advancing still nearer the wings were spread, and then it is that the beauty of the Flamingo is seen to its greatest perfection and advantage. And to witness the simultaneous unfolding of a thousand lovely crimson and black pinions under brilliant sunlight is a sight the recollection of which will not readily be effaced from our memories. On these occasions the flock did not run forward to rise on the wing, but we noticed that they deliberately turned and faced a gentle breeze that was blowing and rose with perfect ease. Their appearance when on the wing, with the neck and legs outstretched, is well known ; and their wing-action resembles that of the Geese. They do not, under ordinary circumstances, fly very high, but we observed them on one occasion at about 200 feet. When flying these birds are stated to assume the V-formation which is characteristically anserine. This may be quite true, perhaps, especially so when on their migrations. We never, however, observed its adoption, though we several times witnessed the whole herd frequenting the Camargue on the

wing simultaneously and performing flights of at least two miles; and we also saw smaller parties, once as few as four birds, wing their way for considerable distances, but in no instance was any particular formation maintained. On alighting they run forward for several yards in a very awkward fashion, due to the impetus that is upon them at the moment of touching the muds or the waters of the lagoon. The note of the Flamingo is not loud, and somewhat resembles that of a Goose; and, so far as our limited experience goes, it was uttered only when the bird was on the wing.

A careful inspection of the members composing the flock revealed the fact that they varied very considerably in size. In some degree this may be attributable to sexual distinction, but neither this fact nor age can, it is thought, quite explain the remarkable differences in stature observed among the adults. Young dull-coloured birds were very few in number in the Camargue herd.

On the 31st of May, when we last saw them, the Flamingoes had not commenced to nidificate, and it is extremely doubtful whether any attempt would be made to nest in the Camargue in the dry season of 1894.

In parting with these birds we had a curious experience of the effects of the mirage. We had put up the birds and watched them alight about a mile away, and were retracing our steps over the muds towards the margin of the étang. After proceeding some little distance, we turned towards the birds to take a last look at them. To our surprise, they had entirely disappeared. A few moments afterwards, and while we were still gazing towards the place where we had last seen them, a small party arose above and fell again behind an invisible veil. All was then explained; but it was manifest to us that one might easily visit this vast haunt and come away without seeing the birds, though they were, comparatively speaking, near at hand.

ANAS BOSCAS, Linn.

The Wild Duck was an abundant species on and in the neighbourhood of the fresh- and brackish-water étangs of the

Camargue, and nests in considerable numbers. It also breeds on the isles in the étangs communicating with the sea adjoining the Golfe de Beauduc.

QUERQUEDULA CIRCIA, Linn.

Two drake Garganeys were observed on the Étang de Consécanière on the 18th of May.

ANAS ACUTA, Linn.

A pair of Pintails was observed on the Étang de Consécanière on the 17th of May, and perhaps others were among the numerous Duck which took wing on our approach on that occasion. Two pairs of these birds frequented this étang and were seen on several occasions. On the 28th of May two drakes and a duck were observed on the water, and a second duck was seen to leave a dense mass of purslane and seablite growing near the margin of one of the islands. We were engaged watching the Avocets at the time, and did not detect the exact patch from which the Duck issued; indeed, it was only as she flew by us that we identified the bird. From the nature of the cover from which she came—breeding-ground of the Red-crested Pochard and the Mallard—and from the manner of her flight, we were convinced that she had a nest there. A careful search among the dense tangled masses of *Atriplex* and *Suæda* failed, however, to reveal the hidden treasure. The finding of the nest of this species within sight of the Mediterranean would have been a fact worth establishing, since it would have carried the breeding-range of this species about 7° to the south of all previous records for Western Europe.

NYROCA FERRUGINEA (Gmelin).

The White-eyed Duck is said to occur on migration in the South of France; but we see no reason why it should not breed in the Delta, which appears to lie within the limits of its permanent distribution. Five birds of this species were seen on the Étang de Ginès, in the south-western Camargue, on the 17th of May.

FULIGULA RUFINA (Pall.).

The Red-crested Pochard is said to seldom visit the waters

of France, and Jaubert and Barthélemy-Lapommeraye state that it is of rare and irregular occurrence in Provence. It was with agreeable surprise, therefore, that we observed two fine drakes on the Étang de Consécanière, in the south-west of the Camargue, on the 17th of May. On the following day, when approaching an island in this same étang, we suddenly came upon three drakes, which allowed us to come within about 15 yards of them. We were at once much impressed with the extreme beauty of these birds, which greatly exceeded our conception formed from cabinet specimens and portraits. We particularly noticed that the elongated feathers of the head, as seen under the brilliant sunlight, appeared to be fringed with gold.

On the island a consort of one of these fine fellows was soon discovered on her nest. This was placed in the centre of a thick tangled mass of purslane (*Atriplex portulacoides*), so dense that it was reached by a covered way, 2 feet in length, worked in the shrub where it rested on the soil. The nest was on the ground, and consisted of a broad rim of down, with a few short dry tamarisk twigs, and contained ten fresh eggs. A few yards further on another duck of this species was disturbed—this time from under an immense shrub of scablite, quite 4 feet in height and as many in diameter. The nest in all respects resembled the last, and contained 17 eggs of two distinct types, and probably the production of different females. The eggs of one set were white and were all singularly malformed. The normal eggs are of a clear pea-green, and a trifle smaller than those of the Pochard. The down in the nest closely resembles that of the Eider-Duck in tint. Both nests were about six yards from the water, and the birds wriggled off at our feet.

About five or six pairs of this bird frequented the Étang de Consécanière, and others were observed in several localities in the southern portion of the Delta, including the marshes and étangs at the mouth of the Grand Rhône.

TURTUR COMMUNIS, Selby.

The Turtle-Dove was very common in suitable districts in

the Camargue, and among the tamarisk-trees in the south. Several were seen among the sandhills close to the sea, where there were stunted trees and bushes. It was abundant in the neighbourhood of Arles.

PTEROCLES ALCHATA (Linn.).

During the day—the 12th of May—spent in the stony wilderness, La Crau, several Pin-tailed Sand-Grouse were seen.

CACCABIS RUFA (Linn.).

The Red-legged Partridge was observed chiefly in the vicinity of cultivated ground, both in the Camargue and the Crau. On several occasions we saw it on the almost birdless wastes, and also among the sandhills on the coast.

[*CACCABIS SAXATILIS*, Meyer.

When visiting the Crau, our kind friend M. Planton was most anxious that we should see this species, but though he caused us to be guided to the most likely localities, yet we were not fortunate enough to find it.]

PERDIX CINEREA, Lath.

Pairs of the Grey Partridge were seen on the wastes in four different districts of the middle region of the Camargue, and it was evidently not an uncommon bird. In the South of France this species is not only considered somewhat rare, but is said to be confined to high ground, so that its presence in the Delta of the Rhone, where it practically dwells at sea-level, is not without interest.

COTURNIX COMMUNIS, Bonnat.

The Quail, in our little experience, was not at all common in the Camargue. But it must be remembered that we devoted almost the whole of our time to the investigation of the wilder districts, and consequently saw comparatively little of the cultivated area, where, however, we heard the notes of this species on two occasions. It was also heard in the neighbourhood of Arles.

GALLINULA CHLOROPUS (Linn.).

The Waterhen was observed only in a certain reedy dyke

near to the east bank of the Grand Rhône. It is evidently not a common bird in the Camargue, and we never saw it there.

FULICA ATRA, Linn.

A Coot's nest, with four eggs, was found among thin sedge in shallow water in the Marais du Couvin on the 18th of May.

ŒDICNEMUS SCOLOPAX (Gmel.).

The Stone-Curlew was thinly distributed over the wastes of the Camargue and Petite Camargue, and was also not uncommon on the stony plain of the Crau.

GLAREOLA PRATINCOLA, Linn.

This was a species that we quite expected to find abundant in the Camargue, yet, strange to say, we never saw it there, though many places were visited that appeared to be eminently suited to its requirements. Its absence from the Delta was, perhaps, to be attributed to an extremely dry season. The only Pratineoles observed were five or six in number, and were flying over a marsh with shallow lagoons in the southern portion of the Grand Plan du Bourg, and within a few miles of the mouth of the Grand Rhône.

CHARADRIUS PLUVIALIS, Linn.

Small flocks of Golden Plover were observed, along with Knots and other migratory waders, in the marshes at the mouth of the Grand Rhône on the 30th of May. On the shores of the Étang du Valcarès, on the following day, they were observed by us for the first time in the Delta, though they may possibly have escaped our previous notice. Most of the birds were in full summer dress.

SQUATAROLA HELVETICA (Linn.).

The Grey Plover is evidently an abundant species during the season of its migrations in the Delta of the Rhone. We observed it between the middle and the end of May in considerable numbers on all the étangs and lagoons of the Camargue. Indeed, the numbers that came under our notice clearly indicate that the Valley of the Rhone forms one of the

main highways along which this bird proceeds to and from the far north. Most of the birds seen were in the perfection of their summer dress. Jaubert and Barthélemy-Lapommeraye state that this bird is found on passage in November and the end of March in the South of France. We found it still quite abundant on the 31st of May, the last day spent by us in the Camargue.

ÆGIALITIS CANTIANA (Lath.).

The Kentish Plover was common on the deserts and wastes of the southern portion of the Camargue, and on the margins of its étangs. It was also abundant in similar situations in the Petite Camargue, and about the mouth of the Grand Rhône. It was little seen on the sea-beach in these regions.

ÆGIALITIS CURONICA (Gmel.).

Two Lesser Ringed Plovers seen on the margin of the Étang de Consécanière, on the 17th of May, were the only ones that came under observation.

ÆGIALITIS HIATICULA (Linn.).

The Ringed Plover is usually described as an abundant species throughout Europe in suitable localities. The shores of the Mediterranean from the mouths of the Rhone to the Spanish frontier, though affording ideal haunts, are probably an exception to this rule. I did not see the bird on the shores of the Pyrénées Orientales in 1889, nor on those of the Delta of the Rhone in 1894. Many, in a flock, were observed feeding on the muds, along with the Dunlins &c., on the north shore of the Étang du Valcarès on the 22nd of May, and were doubtless on migration only.

VANELLUS VULGARIS, Bechst.

The Lapwing was observed in two localities only, and in very small numbers. In the Camargue a few were seen on a waste in the extreme south-east, near Beauduc. In the Rhone marshes below St. Louis several were observed in the neighbourhood of the Golfe de Fos.

HÆMATOPUS OSTRALEGUS, Linn.

The Oystercatcher was common on the shores of the

Mediterranean ; and also on the beds of the dried-up étangs of the Petite Camargue, where it was breeding.

RECURVIROSTRA AVOCETTA, Linn.

The Avocet was not an abundant species in the Camargue in the spring of 1894. This may have been due to the extreme dryness of the season, which rendered secure, and, indeed, suitable breeding-haunts few in number. On the Étang de Consécanière, which was little affected by the drought, about seven pairs were breeding on a small island, depositing their eggs in cakes of curled sun-dried mud near the water's edge. One nest was a depression worked in a mat-like patch of glasswort (*Salicornia radicans*) growing on the muddy shore. A single bird was observed feeding on an étang in the Rhone marsh below St. Louis on the 30th of May. This bird must be a late breeder in the Camargue, for the first eggs were found on the 28th of May.

HIMANTOPUS CANDIDUS, Bonnat.

This was another species whose numbers were, perhaps, considerably affected by the extreme drought of the season. On the 28th of May we had the pleasure of watching five of these singular birds as they sought their food in the shallow waters of an étang in the south-west of the Camargue. On being disturbed they flew noisily over our heads and around us. They showed no signs of breeding. A pair were seen on a small pool in the Marais de la Grande Mar on the 31st of May.

TRINGA ALPINA, Linn.

Many Dunlins were observed feeding on the north shore of the Étang du Valcarès on the 22nd of May. Most of them were in full summer plumage.

TRINGA MINUTA, Leisl.

Five Little Stints were observed on the north shore of the Étang du Valcarès on the 22nd of May.

TRINGA SUBARQUATA (Güld.).

Several Curlew Sandpipers were seen feeding on the south shore of the Étang du Valcarès on the 20th of May.

TRINGA CANUTUS, Linn.

The Knot was observed, during the last ten days of May, as an abundant species on the margins of the étangs and lagoons of the Camargue and Petite Camargue, and those of the Grand Rhône adjoining the Golfe de Fos. All the birds observed were in full summer dress.

CALIDRIS ARENARIA (Linn.).

Migratory Sanderlings were observed in some numbers on the margins of the étangs and lagoons of the southern portion of the Camargue between the 16th and the 20th of May, inclusive.

TOTANUS HYPOLEUCUS (Linn.).

The Common Sandpiper was observed singly and in pairs in various districts throughout the Delta of the Rhone, between the 11th and the 30th of May. They were always observed in the neighbourhood of water, where they were busily engaged in searching for food.

TOTANUS CALIDRIS (Linn.).

As a resident species the Redshank was common in suitable haunts throughout the Camargue and Petite Camargue. In addition, however, to the nesting birds, there were present on the shores of the numerous étangs parties of migrants, the largest of which contained over one hundred birds and was observed on Valcarès on the 31st of May.

TOTANUS FUSCUS (Linn.).

Several Spotted Redshanks in full summer plumage came under our observation on the étangs of the southern portion of the Camargue between the 18th and 26th of May.

TOTANUS CANESCENS (Gmel.).

This species was frequently noted between the 17th and the 31st of May, both in the marshes and in the vicinity of the étangs of the Delta. These Greenshanks were, however, always observed singly, for though several frequented the same locality they were never seen in company. One was observed on the margin of the Marais de Meyranne, south of Arles, on the 23rd of May.

LIMOSA LAPPONICA (Linn.).

A solitary Bar-tailed Godwit, in partial summer dress, was feeding in the shallows of an étang in the Rhone marshes adjoining the Golfe de Fos on the 30th of May.

NUMENIUS PHÆOPUS (Linn.).

The Whimbrel was only observed on two occasions, namely, in the Petite Camargue on the 19th of May, where one was seen on the Étang d'Icard; and several on the Étang du Vaisseau, in the south-eastern portion of the Camargue, on the 26th of that month.

NUMENIUS ARQUATA (Linn.).

The Curlew is quite rare as a resident species in the Camargue, and only twice came under our notice, in the south-west of the Delta. A dozen, or more, were seen feeding on the shore of the Golfe de Fos on the 30th of May.

STERNA FLUVIATILIS, Naum.

The Common Tern is found throughout the southern or lagoon region of the Camargue, breeding commonly on the islands of the étangs. It was also observed on the Marais de Meyranne, below Arles.

STERNA MINUTA, Linn.

This species was fairly common on the étangs of the Camargue, especially those bordering the Mediterranean. It was frequently seen on the sea-shore, at the mouths of the Grand and the Petit Rhône, and on the Canal de Bouc near Arles. The Little Tern was nowhere found breeding, but probably we were too early for eggs.

STERNA ANGLICA, Mont.

A dozen or more Gull-billed Terns were observed at the mouth of the Petit Rhône, in company with *Sterna fluviatilis* and *Hydrochelidon nigra*, on the 19th of May.

HYDROCHELIDON HYBRIDA (Pall.).

Several Whiskered Terns were observed hovering over the Étang de Consécanière on the 17th of May.

HYDROCHELIDON LEUCOPTERA (Schinz).

A White-winged Black Tern was seen on the Golfe de Fos on the 30th of May.

HYDROCHELIDON NIGRA (Linn.).

Black Terns were observed in small numbers on several étangs in the southern Camargue, and at the mouth of the Petit Rhône, down to the 19th of May, after which none were seen. This species, and others of its genus, we expected to find breeding in the Delta, but we failed to discover their haunts, and much doubt whether any of the group nested there in 1894.

LARUS CACHINNANS, Pallas.

This Herring-Gull was quite common on the shores of the étangs of the southern Camargue, on the Rhone, and on the Mediterranean. All the examples observed were, however, in more or less immature plumage.

LARUS RIDIBUNDUS, Linn.

The Black-headed Gull was seen only on an island in the Grand Rhône, just above its embouchure, on the 30th of May.

LARUS MARINUS, Linn.

An excellent view was obtained of an adult Great Black-backed Gull on the Étang de Galabert, on the 27th of May. A westerly gale was blowing at the time, which drove the waters of the Mediterranean into the étang, and the bird was observed slowly flying against the wind. Adult birds are somewhat rare on the Mediterranean even in winter, at which season usually this Gull is observed there.

STERCORARIUS CREPIDATUS (Gmel.).

Two Richardson's Skuas were seen in pursuit of the Terns—*Sterna anglica*, *S. fluviatilis*, *S. minuta*, and *Hydrochelidon nigra*—at the mouth of the Petit Rhône on the 19th of May. One of these was of the melanic form. Both were adults, with long central tail-feathers.

